

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1-9. (Cancelled)

10. (Previously Presented) A method for processing data, comprising:

storing and recalling data in a plurality of data storage logical units (LUs), comprising a plurality of physical media, responsively to commands; and

configuring in each of a plurality of ports a plurality of LU command queues, each of the plurality of LU command queues corresponding to a respective one of the LUs, such that upon receiving a command directed to a specific LU at a given port, the given port places the received command in the LU command queue for the specific LU, converts the received command to one or more converted commands at least some of which are directed to the plurality of the physical media of the specific LU, and conveys the at least some converted commands to the plurality of the physical media in an order determined by the LU command queue, so that an order of arrival of the conveyed converted commands at the specific LU complies with the order of arrival of the received command at the given port, and wherein concurrent commands from different ports arrive at the specific LU in an arbitrary order of arrival.

11. (Previously Presented) The method according to claim 10, wherein the command is comprised in one of a plurality of strings of commands each directed to a respective one of the ports, and further comprising coupling each of the ports to receive the respective string of commands directed thereto.

12. (Previously Presented) The method according to claim 10, wherein the plurality of ports comprises a first port and a second port, the method further comprising:

conveying from the first port a first string of the at least some converted commands in a first order to the physical media; and

conveying from the second port a second string of the at least some converted commands in a second order to the physical media;

wherein storing and recalling the data comprises, at the physical media:

receiving the first string and storing and recalling the data in response to the first order; and

receiving the second string and storing and recalling the data in response to the second order.

13. (Original) The method according to claim 10, wherein the command comprises a request according to a small computer system interface (SCSI) protocol, and wherein the plurality of ports are comprised in a storage system operative according to the SCSI protocol.

14. (Original) The method according to claim 10, wherein each of the plurality of ports operates substantially independently of other ports comprised in the plurality.

15. (Previously Presented) The method according to claim 10, wherein the command is comprised in one of one or more strings of commands, each command of each string being directed via one of the ports to a respective one of the LUs, and comprising:

receiving the commands comprised in the one or more strings;
sorting the commands according to the ports to which the commands are directed; and
conveying the commands to the ports to which the commands are directed.

16. (Previously Presented) The method according to claim 10, wherein the received command comprises a write command to store a data string from a host to the plurality of the physical media, wherein the one or more converted commands comprise instructions to the host to convey the data string to the plurality of the physical media via the port, and wherein the port is adapted to convey the instructions to the host.

17. (Previously Presented) The method according to claim 10, wherein the received command comprises a read command from a host to read a data string from the plurality of the physical media, and wherein the one or more converted commands comprise instructions to convey the data string via the given port to the host.

18. (Previously Presented) The method according to claim 10, wherein the plurality of the physical media comprise the data, and comprising tracking at the given port changes of location of the data within the plurality of the physical media.

19-21. (Cancelled)

22. (Previously Presented) The method according to claim 10, wherein the plurality of the physical media comprise a plurality of slow access time non-volatile physical media.

23. (Cancelled)

24. (Previously Presented) The method according to claim 10, wherein the plurality of the physical media comprise a plurality of slow access time non-volatile physical media.

25. (Cancelled)

26. (Previously Presented) The method according to claim 10, wherein a particular physical media of the plurality of the physical media changes over time.

27. (Cancelled)

28. (Previously Presented) The method according to claim 10, wherein each data storage logical unit (LU) is distributed across a plural subset of the plurality of the physical media.

29. (Cancelled)

30. (Previously Presented) The method according to claim 10, wherein the given port converting the received command to the one or more converted commands converts a logical block address and a length of that string included in the received command; and

wherein the converting operation performed by the port also determines if the command is one of a read command and a write command.

31. (Previously Presented) A storage system, comprising:

means for storing and recalling data in a plurality of data storage logical units (LUs), comprising a plurality of physical media, responsively to commands; and

means for configuring in each of a plurality of ports a plurality of LU command queues, each of the plurality of LU command queues corresponding to a respective one of the LUs, such that upon receiving a command directed to a specific LU at a given port, the given port places the received command in the LU command queue for the specific LU, converts the received command to one or more converted commands at least some of which are directed to the plurality of the physical media of the specific LU, and conveys the at least some converted commands to the plurality of the physical media in an order determined by the LU command queue, so that an order of arrival of the conveyed converted commands at the specific LU complies with the order of arrival of the received command at the given port, and wherein concurrent commands from different ports arrive at the specific LU in an arbitrary order of arrival.

32. (Previously Presented) The storage system according to claim 31, wherein the plurality of ports comprises a first port and a second port, the storage system further comprising:

means for conveying from the first port a first string of the at least some converted commands in a first order to the physical media; and

means for conveying from the second port a second string of the at least some converted commands in a second order to the physical media;

wherein the means for storing and recalling the data comprises, at the physical media:

means for receiving the first string and storing and recalling the data in response to the first order; and

means for receiving the second string and storing and recalling the data in response to the second order.

33. (Previously Presented) The storage system according to claim 31, wherein the command is comprised in one of one or more strings of commands, each command of each string being directed via one of the ports to a respective one of the LUs, and comprising:

means for receiving the commands comprised in the one or more strings;

means for sorting the commands according to the ports to which the commands are directed; and

means for conveying the commands to the ports to which the commands are directed.

34. (Previously Presented) A storage medium comprising instructions that, when executed by a processor, cause the processor to perform a method for processing data comprising the steps of:

storing and recalling data in a plurality of data storage logical units (LUs), comprising a plurality of physical media, responsively to commands; and

configuring in each of a plurality of ports a plurality of LU command queues, each of the plurality of LU command queues corresponding to a respective one of the LUs, such that upon receiving a command directed to a specific LU at a given port, the given port places the received command in the LU command queue for the specific LU, converts the received command to one or more converted commands at least some of which are directed to the plurality of the physical media of the specific LU, and conveys the at least some converted commands to the plurality of the physical media in an order determined by the LU command queue, so that an order of arrival of the conveyed converted commands at the specific LU complies with the order of arrival of the received command at the given port, and wherein concurrent commands from different ports arrive at the specific LU in an arbitrary order of arrival.

35. (Previously Presented) The storage medium according to claim 34, wherein the plurality of ports comprises a first port and a second port, the storage medium further comprising instructions that cause the processor to perform the steps of:

conveying from the first port a first string of the at least some converted commands in a first order to the physical media; and

conveying from the second port a second string of the at least some converted commands in a second order to the physical media;

wherein the means for storing and recalling the data comprises, at the physical media:

receiving the first string and storing and recalling the data in response to the first order; and

receiving the second string and storing and recalling the data in response to the second order.

36. (Previously Presented) The storage medium according to claim 34, wherein the command is comprised in one of one or more strings of commands, each command of each string being directed via one of the ports to a respective one of the LUs, the storage medium further comprising instructions that cause the processor to perform the steps of:

receiving the commands comprised in the one or more strings;

sorting the commands according to the ports to which the commands are directed; and

conveying the commands to the ports to which the commands are directed.